



PALLADURE 500

For Electronic Finishing Applications

| Regional Product Availability | | | |
|-------------------------------|-------------|------|--------|
| N.America | Japan/Korea | Asia | Europe |
| ✓ | | | |

DESCRIPTION

The Palladure 500 process is characterized by its ability to produce semi-bright to bright, crack-free, pure palladium deposits suitable for electronic applications.

ADVANTAGES

- Exceptional contact stability
- Solution is capable of producing very high plating rates
- Low internal stress of deposit

DEPOSIT PROPERTIES

Pure: 99.9+%

RECOMMENDED PROCESS CYCLE

Connector Applications

1. Alkaline Electroclean: Ronaclean GP-300 LF
2. Rinse
3. Acid Neutralization: 10% H₂SO₄
4. Rinse
5. Nickel Plate: Nikal SC
6. Nickel Activation: Ronatab Acid Activator PC-1
7. Rinse
8. Pallamet Palladium-Nickel Strike/Plate (optional)
9. Palladure 500 Plate
10. Ronovel Gold Flash
11. Rinse
12. Hot Deionized Water Rinse
13. Hot Air Dry

BATH MAKE-UP

Chemicals Required

Palladure 500 Make-up Solution

Palladure Palladium Salt

Palladure 500 Additive

Palladure 500 Carrier

MAKE-UP PROCEDURE

1. Add Palladure 500 Make-up Solution to tank.
2. Add Palladure Palladium Salt and mix thoroughly until dissolved.
3. Add Palladure 500 Additive and mix thoroughly.
4. Add Palladure 500 Carrier and mix thoroughly.
5. Dilute to volume with deionized water and mix thoroughly.
6. Check pH and specific gravity and adjust as necessary.

Bath Make-up—Connector Applications (Metric)

| Chemicals Required | Range | Recommended |
|--------------------------------|--------------|-------------|
| Palladure 500 Make-up Solution | 700–800 ml/l | 750 ml/l |
| Palladure Palladium Salt | 60–65 g/l | 62 g/l |
| Palladure 500 Additive | 8–12 ml/l | 10 ml/l |
| Palladure 500 Carrier | 2–4 ml/l | 3 ml/l |

Bath Make-up—Connector Applications (U.S.)

| Chemicals Required | Range | Recommended |
|--------------------------------|--------------|--------------|
| Palladure 500 Make-up Solution | 70–80% v/v | 75% v/v |
| Palladure Palladium Salt | 8–9 oz./gal. | 8.3 oz./gal. |
| Palladure 500 Additive | 0.8–1.2% v/v | 1.0% v/v |
| Palladure 500 Carrier | 0.2–0.4% v/v | 0.3% v/v |

PALLADURE 500

Operating Parameters—Metric

| Parameter | Range | Recommended |
|------------------|---|-------------|
| Palladium Metal | 24–26 g/l | 25 g/l |
| Temperature | 45–55°C | 50°C |
| Specific Gravity | 1.07–1.19 | 1.13 |
| pH | 7.0–7.6 | 7.3 |
| Agitation | Moderate solution agitation combined with cathode movement | |
| Current Density | 0.5–10 A/dm ² | |
| Deposition rate | 0.25 microns/minute at 1 A/dm ² 0.03g per ampere minute | |

Operating Parameters—U.S.

| Parameter | Range | Recommended |
|------------------|--|--------------|
| Palladium Metal | 3.2–3.5 oz./gal. | 3.3 oz./gal. |
| Temperature | 115–130°F | 120°F |
| Specific Gravity | 1.07–1.19 | 1.13 |
| pH | 7.0–7.6 | 7.3 |
| Agitation | Moderate solution agitation combined with cathode movement | |
| Current Density | 5–100 A/ft ² | |
| Deposition rate | 10 microinches/minute at 10 A/ft ² 0.03g per ampere minute | |

BATH MAINTENANCE

Palladure 500 Make-up Solution

Palladure 500 Make-up Solution contains the basic conductivity salts.

Palladure Palladium Salt

To raise palladium concentration by 1.0 g/l (0.13 oz./gal.), add 2.5 g/l (0.33 oz./gal.) Palladure Palladium Salt.

Palladure 500 Additive

Palladure 500 Additive contains the active ingredients required on solution make-up and during operation for optimum range and brightness.

Palladure 500 Carrier

Palladure 500 Carrier is a wetting agent required on solution make-up and during operation to maintain optimum range.

Ammonium Hydroxide

Ammonium hydroxide is used to raise solution pH. The quantity of ammonium hydroxide required is dependent upon operating temperature and solution pH.

EQUIPMENT

- Tanks: Koroseal-lined, PVDC, polypropylene or other suitable plastics; customers should check with Rohm and Haas Electronic Materials if the suitability of any material is in question
- Anodes: Platinized titanium, platinum-clad tantalum or platinum
- Heater: Immersion quartz or titanium heaters
- Filter: 1 micron filters are recommended
- Pump: Sufficient capacity to turn bath over four times per hour

EQUIPMENT PREPARATION

Prior to make-up, the process tank and ancillary equipment should be thoroughly cleaned and then leached with an ammonium hydroxide solution. This procedure is particularly important for new equipment or equipment previously used for other processes.

I. Cleaning Solution

- Trisodium phosphate: 15 g/l (2 oz./gal.)
- Sodium hydroxide: 15 g/l (2 oz./gal.)

II. Neutralizing Solution

Sulfuric acid: 50 ml/l (5% v/v)

III. Leaching Solution

Ammonium hydroxide 50 ml/l (5% v/v)

PALLADURE 500

IV. Procedure

- a) Thoroughly wash down tank and ancillary equipment with clean water.
- b) Recirculate water through the complete system to remove water soluble materials.
- c) Discard rinse water.
- d) Add cleaning solution to the tank, heat to 55–60°C (130–140°F) and recirculate through the complete system.
- e) Discard cleaning solution.
- f) Recirculate water through the complete system.
- g) Discard rinse water.
- h) Add neutralizing solution and recirculate through the complete system.
- i) Discard neutralizing solution.
- j) Recirculate water through the complete system.
- k) Discard rinse water.
- l) Add leaching solution and recirculate through the complete system.
- m) Leave leaching solution in tank for a minimum of 8 hours.
- n) Recirculate leaching solution through the complete system.
- o) Discard leaching solution.
- p) Recirculate water through the complete system.
- q) Discard rinse water.

PRODUCT DATA

Palladure 500 Make-up Solution

| | |
|-------------------|-------------------------|
| Appearance: | Clear, colorless liquid |
| pH: | 7.8 |
| Specific Gravity: | 1.10 |

Palladure Palladium Salt

| | |
|-------------|----------------|
| Appearance: | White crystals |
|-------------|----------------|

Palladure 500 Additive

| | |
|-------------|-------------------------|
| Appearance: | Clear, colorless liquid |
|-------------|-------------------------|

Palladure 500 Carrier

| | |
|-------------|-------------------------|
| Appearance: | Clear, colorless liquid |
|-------------|-------------------------|

HANDLING PRECAUTIONS

Before using this product, consult the Material Safety Data Sheet (MSDS)/Safety Data Sheet (SDS) for details on product hazards, recommended handling precautions and product storage.

CAUTION! Keep combustible and/or flammable products and their vapors away from heat, sparks, flames and other sources of ignition including static discharge. Processing or operating at temperatures near or above product flashpoint may pose a fire hazard. Use appropriate grounding and bonding techniques to manage static discharge hazards.

CAUTION! Failure to maintain proper volume level when using immersion heaters can expose tank and solution to excessive heat resulting in a possible combustion hazard, particularly when plastic tanks are used.

STORAGE

Store products in tightly closed original containers at temperatures recommended on the product label.

DISPOSAL CONSIDERATIONS


Dispose in accordance with all local, state (provincial) and federal regulations. Empty containers may contain hazardous residues. This material and its container must be disposed in a safe and legal manner.

It is the user's responsibility to verify that treatment and disposal procedures comply with local, state (provincial) and federal regulations. Contact your Rohm and Haas Electronic Materials Technical Representative for more information.


PALLADURE 500



ELECTRONIC MATERIALS

 Circuit Board Technologies

 CMP Technologies

 Microelectronic Technologies

 Packaging and Finishing Technologies

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